

<b>EPA</b> United States Environmental Protection Agency Washington, DC 20460 <b>Work Assignment</b>		Work Assignment Number 2-01								
		<input type="checkbox"/> Other <input type="checkbox"/> Amendment Number:								
Contract Number EP-D-13-005		Contract Period 01/01/2013 To 12/31/2017 Base                      Option Period Number 1								
Title of Work Assignment/SF Site Name CSN Data Assessments										
Contractor BATTELLE MEMORIAL INSTITUTE		Specify Section and paragraph of Contract SOW Task 3								
Purpose: <input checked="" type="checkbox"/> Work Assignment <input type="checkbox"/> Work Assignment Close-Out <input type="checkbox"/> Work Assignment Amendment <input type="checkbox"/> Incremental Funding <input type="checkbox"/> Work Plan Approval		Period of Performance  From 01/16/2014 To 12/31/2014								
Comments: Title: Chemical Speciation Network (CSN) Data Assessments. This is a continuation of Work Assignment 1-04. This WA includes 250 hours to prepare the work plan and begin work. See Task 1 for work plan requirements. To the best of our knowledge, this work does not duplicate any work previously performed, or currently being performed by this office.										
<input type="checkbox"/> Superfund		Accounting and Appropriations Data								
		<input checked="" type="checkbox"/> Non-Superfund								
SFO (Max 2) <input type="checkbox"/>		Note: To report additional accounting and appropriations data use EPA Form 1900-69A.								
Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
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Authorized Work Assignment Ceiling										
Contract Period:		Cost/Fee:				LOE: 0				
01/01/2013 To 12/31/2017										
This Action:						250				
						250				
Total:										
Work Plan / Cost Estimate Approvals										
Contractor WP Dated:				Cost/Fee:		LOE:				
Cumulative Approved:				Cost/Fee:		LOE:				
Work Assignment Manager Name Elizabeth Landis						Branch/Mail Code:				
_____ (Signature)                      (Date)						Phone Number 919-541-2262				
						FAX Number:				
Project Officer Name Jeff Curry						Branch/Mail Code:				
_____ (Signature)                      (Date)						Phone Number: 919-541-4018				
						FAX Number: 919-541-4267				
Other Agency Official Name						Branch/Mail Code:				
_____ (Signature)                      (Date)						Phone Number:				
						FAX Number:				
Contracting Official Name Antonio L. Leathers						Branch/Mail Code:				
_____ (Signature)                      (Date)						Phone Number: 919-541-2312				
						FAX Number:				

## **STATEMENT OF WORK**

### **I. TITLE: Chemical Speciation Network (CSN) Data Assessment**

### **II. PROJECT BACKGROUND**

The deployment of a PM monitoring network is a critical component in the national implementation of the PM NAAQS. The ambient data from this network drives an array of regulatory decisions, ranging from designating areas as attainment or nonattainment, to developing cost-effective control programs and tracking the progress of such programs. Data derived from the PM monitoring network include both aerosol mass measurements and chemical speciation data. Mass measurements are used principally for PM NAAQS comparison purposes in identifying areas that meet or do not meet PM NAAQS, and in supporting designation as attainment or non-attainment. Chemical speciation data serve the implementation needs associated with developing emission mitigation approaches to reduce ambient aerosol levels and a variety of research and modeling needs. These measurements also provide support for regional haze assessments. The PM Chemical Speciation Network (CSN) consists of approximately 50 Trends sites for routine speciation monitoring and another 150 or so sites for state/local driven monitoring needs. There are several data evaluation and assessment needs that can be used to inform decision-making and improve the overall quality of data generated by the CSN monitoring network.

The Contractor shall not publish or present results from this work assignment without prior notification and review by EPA.

### **III. STATEMENT OF WORK**

The Contractor shall provide the following:

#### **Task 1. Work Plan and Cost Estimate for Work Assignment**

This work assignment is a follow-on to WA 1-04. A new work plan is not required. The contractor shall submit a revised cost estimate, broken out by task and subtask, in accordance with the terms of the contract.

#### **Task 2. CSN Field Blank Data**

**NOTE:** All reports listed in Task 2 shall be developed in SAS in a manner that can be used to regenerate reports with different conditions (e.g., change year). The SAS code shall be made available to EPA as a product of the WA. Where appropriate, the sampling method shall be noted, as certain samplers have changed since the beginning of the network.

The CSN collects a variety of field-related blank types (field blanks, trip blanks, and backup filter blanks) for the mass, elements, ions, and carbon parameters. The CSN began in 2001 with



at least 3 sampler types used to collect all of the species of interest (MetOne SASS, Andersen RAAS, and URG MASS). In 2007, the CSN began converting the carbon sampler and analysis method to be consistent with the Inter-agency Monitoring of Protected Visual Environments (IMPROVE) program. The IMPROVE-like URG3000N carbon sampler and the IMPROVE\_A analysis method was implemented at all CSN by October 2009. The collection of backup filter blanks was also instituted with the carbon conversion. The CSN has migrated to two sampler types, the MetOne SASS/SuperSASS for mass, elements, and ions and the URG 3000N for carbon.

In this task, the Contractor shall obtain all CSN blank data from EPA's AQS database. The blank data shall be compiled and statistics performed to show blank concentration trends over time (2001 to 2012) along with the maximum, minimum, median, and mean blank concentrations by year (all sites combined) and by sampler type for all parameters where at least 50% of the measurements are greater than the MDL. Results shall be provided in mass (total micrograms per filter) and in concentration (micrograms per cubic meter) using a nominal sample volume for each sampler type. For each of these parameters and sampler types, a table shall be created along with graphical presentation of the trends (e.g., annual box plots) that clearly displays the mean, median, minimum, and maximum results. The Contractor shall develop SAS code for this assessment that automates the process and transfer the final code to EPA for future assessments. All plots and statistics shall also be provided in electronic format, along with a summary report explaining the results and how they were obtained.

## **DELIVERABLES**

**Table 2. List of Deliverables and Due Dates**

<b>Task</b>	<b>Deliverables</b>	<b>Due Date</b>
1	Work Plan and cost estimate	In accordance with the terms of the contract.
2	CSN Field Blank Data – SAS code, tables & summary report	June 30, 2014

## **REPORTING REQUIREMENTS**

The reporting requirements shall be in accordance with the terms and conditions in the contract. Any programming language developed to perform and complete the deliverables in Table 2 shall be in the SAS language. An electronic copy of all SAS code developed under this WA shall be delivered at the end of the WA period of performance.

[END]

<b>EPA</b> <div style="display: inline-block; vertical-align: middle;"> United States Environmental Protection Agency  Washington, DC 20460   <b>Work Assignment</b> </div>						Work Assignment Number 2-01				
						<input type="checkbox"/> Other <input checked="" type="checkbox"/> Amendment Number: 000001				
Contract Number EP-D-13-005			Contract Period   01/01/2014   To   12/31/2014			Title of Work Assignment/SF Site Name CSN Data Assessments				
Contractor BATTELLE MEMORIAL INSTITUTE			Specify Section and paragraph of Contract SOW Task 3							
Purpose: <input type="checkbox"/> Work Assignment <input type="checkbox"/> Work Assignment Close-Out <input checked="" type="checkbox"/> Work Assignment Amendment <input type="checkbox"/> Incremental Funding <input type="checkbox"/> Work Plan Approval						Period of Performance  From 01/16/2014 To 12/31/2014				
Comments: Title: Chemical Speciation Network (CSN) Data Assessments. This change adds task 3 (attachment 1) to the WA. A revised cost estimate shall be submitted within 10 business days of the effective date. To the best of our knowledge, this work does not duplicate any work previously performed, or currently being performed by this office										
<input type="checkbox"/> Superfund                      Accounting and Appropriations Data <input checked="" type="checkbox"/> Non-Superfund										
SFO (Max 2) <input type="checkbox"/> Note: To report additional accounting and appropriations data use EPA Form 1900-69A.										
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1										
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Authorized Work Assignment Ceiling										
Contract Period:		Cost/Fee:				LOE: 250				
01/01/2014 To 12/31/2014										
This Action:						0				
Total:						250				
Work Plan / Cost Estimate Approvals										
Contractor WP Dated:				Cost/Fee:		LOE:				
Cumulative Approved:				Cost/Fee:		LOE:				
Work Assignment Manager Name   Elizabeth Landis						Branch/Mail Code:				
_____ (Signature)                      (Date)						Phone Number   919-541-2262				
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Project Officer Name   Jeff Curry						Branch/Mail Code:				
_____ (Signature)                      (Date)						Phone Number:   919-541-4018				
						FAX Number:   919-541-4267				
Other Agency Official Name						Branch/Mail Code:				
_____ (Signature)                      (Date)						Phone Number:				
						FAX Number:				
Contracting Official Name   Antonio L. Leathers						Branch/Mail Code:				
_____ (Signature)                      (Date)						Phone Number:   919-541-2312				
						FAX Number:				



## **STATEMENT OF WORK**

### **I. TITLE: AA-PGVP Database Maintenance**

### **II. PROJECT BACKGROUND**

The Office of Air Quality Planning and Standards (OAQPS), Ambient Air Quality Monitoring Program (AAMG) Quality Assurance (QA) requirements (40 CFR Part 58, Appendix A) states:

*"2. 6 Gaseous and Flow Rate Audit Standards. Gaseous pollutant concentration standards (permeation devices or cylinders of compressed gas) used to obtain test concentrations for CO, SO<sub>2</sub>, NO, and NO<sub>2</sub> must be traceable to either a National Institute of Standards and Technology (NIST) Traceable Reference Material (NTRM), NIST Standard Reference Materials (SRM) and Netherlands Measurement Institute (NMI) Primary Reference Materials (valid as covered by Joint Declaration of Equivalence) or a NIST-certified Gas Manufacturer's Internal Standard (GMIS), certified in accordance with one of the procedures given in reference 4 of this appendix. Vendors advertising certification with the procedures provided in reference 4 of this appendix and distributing gases as "EPA Protocol Gas" must participate in the EPA Protocol Gas Verification Program or not use "EPA" in any form of advertising."*

This requirement gives assurance to end users that all specialty gas producers selling EPA Protocol Gases are participants in a program that provides an independent assessment of the accuracy of their gases' certified concentrations.

In 2010, the AAMG and Regions 2 and 7 initiated the implementation of the Ambient Air Protocol Gas Verification Program (AA-PGVP). Verifications started in June 2010.

In 2011, RTI under Contract EP-D-08-047 assisted the AA-PGVP by developing the AA-PGVP survey and housing it on the RTI website where monitoring organizations can access and complete the survey. This WA will ensure continued support, maintenance and enhancement of the survey.

### **III. STATEMENT OF WORK**

#### **Task 1 – Work Plan and Cost Estimate**

The Contractor shall meet with the Work Assignment Manager (WAM) to discuss the work assignment tasks and deliverables. This meeting can be via teleconference. The contractor shall then prepare and submit a work plan and cost estimate for this work assignment.

#### **Task 2 – Maintain and Enhance the AA-PGVP Survey to Provide for Website Submission**

In a previous WA, a web-based survey was developed that provided information on what gas manufacturing production facilities are used by PQAOS; and it also informed EPA of PQAOS that wished to participate in the program. For this task, the Contractor shall:

- Meet with EPA to discuss the operation of the website, and explore any enhancements needed for 2014,
- Review current website access guidance with EPA and revise if necessary,
- Maintain the current survey on the website,
- Assist individuals gain access to the website when access problems occur,
- Review the possibility of a "Help" button that includes common issues (like correct email address), and also goes to an email address where the person can send an email of their problem,
- Ensure that PQAOs have updated the form each year by having certain required fields left unfilled (database starts "new" in November of each year) until the POC submits this information,
- Send bi-weekly reminder messages out to those organizations not completing the survey. For FY2014, we will include one EPA Regional Point of Contact to any reminder list that has a delinquent monitoring organization in a particular Region,
- Enhance the survey to allow one regional point of contact to fill in a survey for a delinquent monitoring organization,
- Provide a "same as last year" field that would allow the POC to just click on this if the information is the same as the previous year, and
- Provide two Excel reports every month: 1) the monitoring organizations that have filled out the survey and 2) a listing of delinquent monitoring organizations.

#### IV. DELIVERABLES

TABLE I. List of Deliverable and Due Dates

Task	Deliverables	Due Date
I	Work Plan and Cost Estimate	In accordance with the terms of the contract.
2	Participant Survey Maintenance	9 months ongoing activities
3	Reports	2 months from WA approval

#### V. REPORTING REQUIREMENTS

The reporting requirements shall be in accordance with the terms and conditions in the contract.

[END]



<b>EPA</b> United States Environmental Protection Agency Washington, DC 20460 <b>Work Assignment</b>		Work Assignment Number 2-03	
		<input type="checkbox"/> Other <input type="checkbox"/> Amendment Number:	
Contract Number EP-D-13-005		Contract Period 01/01/2013 To 12/31/2017 Base                      Option Period Number 1	
Contractor BATTELLE MEMORIAL INSTITUTE		Title of Work Assignment/SF Site Name Pb Audit Strip Development	
Specify Section and paragraph of Contract SOW Tasks 3 & 6			
Purpose: <input checked="" type="checkbox"/> Work Assignment <input type="checkbox"/> Work Assignment Close-Out <input type="checkbox"/> Work Assignment Amendment <input type="checkbox"/> Incremental Funding <input type="checkbox"/> Work Plan Approval		Period of Performance  From 01/16/2014 To 12/31/2014	
Comments: Title: Pb Audit Strip Development. This is a continuation of Work Assignment 1-04. This WA includes 50 hours to prepare the work plan and begin work. See Task 1 for work plan requirements. To the best of our knowledge, this work does not duplicate any work previously performed, or currently being performed by this office.			
<input type="checkbox"/> Superfund		Accounting and Appropriations Data	
		<input checked="" type="checkbox"/> Non-Superfund	
Note: To report additional accounting and appropriations data use EPA Form 1900-69A.			
SFO (Max 2) <input type="checkbox"/>			
Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)
			Budget Org/Code (Max 7)
			Program Element (Max 9)
			Object Class (Max 4)
			Amount (Dollars)
			(Cents)
			Site/Project (Max 8)
			Cost Org/Code (Max 7)
1			
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5			
Authorized Work Assignment Ceiling			
Contract Period:		Cost/Fee:	
01/01/2013 To 12/31/2017		LOE: 0	
This Action:		50	
Total:		50	
Work Plan / Cost Estimate Approvals			
Contractor WP Dated:		Cost/Fee:	
		LOE:	
Cumulative Approved:		Cost/Fee:	
		LOE:	
Work Assignment Manager Name Michael Papp		Branch/Mail Code:	
		Phone Number 919-541-2408	
(Signature) _____ (Date) _____		FAX Number:	
Project Officer Name Jeff Curry		Branch/Mail Code:	
		Phone Number: 919-541-4018	
(Signature) _____ (Date) _____		FAX Number: 919-541-4267	
Other Agency Official Name		Branch/Mail Code:	
		Phone Number:	
(Signature) _____ (Date) _____		FAX Number:	
Contracting Official Name Antonio L. Leathers		Branch/Mail Code:	
		Phone Number: 919-541-2312	
(Signature) _____ (Date) _____		FAX Number:	

## STATEMENT OF WORK

### TITLE: Pb Audit Strip Development

#### I. PROJECT BACKGROUND

The Pb monitoring program requires Pb analytical laboratories to implement Pb analysis audits at the concentrations and frequency required in 40 CFR Part 58 Appendix A section 3.3.4.2. One change made was reducing the concentration of the Pb-strip audits relative to the lowering of the NAAQS.

Level	Prior Regulation		Current Regulation		
	Pb Conc ( $\mu\text{g}/\text{strip}$ )	Ambient Air Conc* ( $\mu\text{g}/\text{m}^3$ )	Pb Conc ( $\mu\text{g}/\text{strip}$ )	Ambient Air Conc* ( $\mu\text{g}/\text{m}^3$ )	Conc Percentage of NAAQS
1	100 - 300	0.5 - 1.5	9 - 30	0.04 - 0.15	30-100%
2	600 - 1000	3.0 - 5.0	60 - 90	0.30 - 0.45	200-300%

\* Equivalent ambient Pb concentration in  $\mu\text{g}/\text{m}^3$  is based on sampling at 1.7  $\text{m}^3/\text{min}$  for 24 hours on a 20.3 cmX25.4 cm (8X10 inch) glass fiber filter.

In addition, due to the allowance of  $\text{PM}_{10}$  low volume methods, EPA must also develop Teflon audit filters for use in destructive and non-destructive analysis.

In 2013, under WA 1-07, the contractor was tasked to prepare analysis audits for glass fiber filters and for Teflon filters that would be used by the ICP-MS analytical technique. This WA provides for shipping of Pb TSP analysis audits and continued preparation and testing on Teflon analysis audits for use with the ICP-MS analytical technique.

#### II. STATEMENT OF WORK

The Work Assignment (WA) Manager is authorized to provide technical direction and will also provide the Contractor with all filter media. The Contractor shall perform the following specific sub-tasks:

##### **TASK 1 - Preparation of Work Plan**

This work assignment is a follow-on to WA 1-07. A new work plan is not required. The contractor shall submit a revised cost estimate, broken out by task and subtask, in accordance with the terms of the contract.

##### **TASK 2: - Shipping Pb Analysis Audits- Filter Strips**

WA 1-07 completed the development and testing of the 1-inch Pb strips. The contractor shall



package and ship the audits to the monitoring organizations based on a list supplied to them by EPA.

### **TASK 3: - Development and Testing of Pb Analysis Audits – 46.2 mm Teflon Filters**

In WA1-07, the contractor was required to develop 200 46.2 mm Teflon filters at two concentrations ranges for a total of 100 filters per concentration. One concentration range shall be from 30-100% and a second from 200-300% of the current NAAQS. The contractor ran into some difficulties with the procedure and has currently not met the acceptance criteria based on laboratory analysis.

Presently the contractor is not sure whether the issues of non-compliance with the testing acceptance criteria (described in WA1-07) are associated with preparation and spiking the filters or with the analytical laboratories used in filter testing. The contractor shall continue to refine the technique and perform additional testing. Minimally, for this work assignment, after testing, 72 audit filters (36 at each concentration) shall be available for distribution to monitoring organizations. The contractor will ship these filters to EPA for inventory.

## **II. DELIVERABLES**

TABLE 1. List of Deliverable and Due Dates

<b>Task</b>	<b>Deliverables</b>	<b>Due Date</b>
1	Work Plan and Cost Estimate	In accordance with the terms of the contract.
2	Shipping Filter Strips	Jan 17, 2014
3	Development and Testing of Pb Analysis Audits- Teflon Filters	June 30, 2014

## **V. REPORTING REQUIREMENTS**

The reporting requirements shall be in accordance with the terms and conditions in the contract.

<b>EPA</b> United States Environmental Protection Agency Washington, DC 20460 <b>Work Assignment</b>		Work Assignment Number 2-03								
		<input type="checkbox"/> Other <input type="checkbox"/> Amendment Number:								
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Cumulative Approved:		Cost/Fee:				LOE:				
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## STATEMENT OF WORK

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## **V. REPORTING REQUIREMENTS**

The reporting requirements shall be in accordance with the terms and conditions in the contract.



**EPA**United States Environmental Protection Agency  
Washington, DC 20460**Work Assignment**

Work Assignment Number

2-04

☐ Other ☐ Amendment Number:

Contract Number

EP-D-13-005

Contract Period 01/01/2013 To 12/31/2017

Base

Option Period Number 1

Title of Work Assignment/SF Site Name

Support Monitoring QA Programs

Contractor

BATTELLE MEMORIAL INSTITUTE

Specify Section and paragraph of Contract SOW

Tasks: 1, 3, 4 &amp; 8

Purpose:



Work Assignment



Work Assignment Close-Out



Work Assignment Amendment



Incremental Funding



Work Plan Approval

Period of Performance

From 01/16/2014 To 12/31/2014

Comments:

Title: Technical Support for the National Monitoring Networks Quality Assurance Program. This WA includes 400 hours to prepare the work plan and begin work. To the best of our knowledge, this work does not duplicate any work previously performed, or currently being performed by this office.



Superfund

## Accounting and Appropriations Data



Non-Superfund

Note: To report additional accounting and appropriations data use EPA Form 1900-69A.

SFO

(Max 2)



Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
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5										

## Authorized Work Assignment Ceiling

Contract Period:

Cost/Fee:

LOE: 0

01/01/2013 To 12/31/2017

This Action:

400

Total:

400

## Work Plan / Cost Estimate Approvals

Contractor WP Dated:

Cost/Fee:

LOE:

Cumulative Approved:

Cost/Fee:

LOE:

Work Assignment Manager Name Dennis Crumpler

Branch/Mail Code:

Phone Number 919-541-0871

FAX Number:

(Signature)

(Date)

Project Officer Name Jeff Curry

Branch/Mail Code:

Phone Number: 919-541-4018

FAX Number: 919-541-4267

(Signature)

(Date)

Other Agency Official Name

Branch/Mail Code:

Phone Number:

FAX Number:

(Signature)

(Date)

Contracting Official Name Antonio L. Leathers

Branch/Mail Code:

Phone Number: 919-541-2312

FAX Number:

(Signature)

(Date)

## **STATEMENT OF WORK**

**I. TITLE: Technical Support for the National Monitoring Networks Quality Assurance Programs**

**II. PROJECT BACKGROUND**

This Work Assignment (WA) will support the EPA implementation of ongoing quality assurance programs in fulfillment of 40 CFR Part 58, Appendix A.

On July 18, 1997, EPA promulgated the new national Ambient Air Quality Standards (NAAQS) for Particulate Matter (PM). The regulations, including monitoring methods for determining compliance with the NAAQS, are detailed in 40 CFR Parts 50, 53, and 58. The regulations were revised on October 17, 2006 and more recently on December 14, 2012. The NAAQS apply to the mass concentration of particles with aerodynamic diameters lower than 2.5  $\mu\text{m}$  (PM<sub>2.5</sub>). The NAAQS currently specify:

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### **PM<sub>2.5</sub> QA Activities**

Precision for the PM<sub>2.5</sub> FRM/FEM network, as specified in 40 CFR Part 58 Appendix A as of October 17, 2006, is determined by collocating a replicate sampler at 15% of the existing sites and taking a sample at least once every 4th FRM sampling event, (every 12 days). An average coefficient of variation between like samplers is calculated for each sampler type and for the network for each year. Precision for the CSN is determined by collocated sampling at 6 sites STN/NCore sites established in the early design of the STN.

The activities associated with the measurements, analyses and determination of bias of the PM<sub>2.5</sub> FRM/FEM networks is called the Performance Evaluation Program (PM<sub>2.5</sub> - PEP). The procedure is to collocate a portable FRM audit sampler with a FRM sampler at an established State, Local or Tribal (SLT) routine air monitoring site, collect a 24-hour sample with each sampler, and then store the resultant concentration data from the audit sampler in the Air Quality System (AQS) database. The network bias is calculated from data from the PEP sampler that is compared with the routine sampler data derived



on the same sampling date. Under the 2006 revised regulations, PM<sub>2.5</sub>-PEP collocated sampling was reduced from 25% down to 15% of the network each year beginning in 2007. The rule changes also called for consolidating the current FRM Reporting organizations in each State, independent local agency or Tribal Agency into Primary Quality Assurance Organizations (PQAO) for the purpose of conducting a less costly PEP program. Primary quality assurance organizations with 5 or less PM<sub>2.5</sub> monitoring sites would be required to have at least 5 valid audits per year ideally distributed across 4 calendar quarters; primary quality assurance organizations with greater than 5 sites would be required to have 8 valid audits per year distributed across the 4 quarters. (All sampling method designations should be covered in a given year.)

The gravimetric analytical support work is performed by a contractor supported laboratory located at EPA Region 4 Science & Ecosystems Support Division in Athens Georgia. The PM<sub>2.5</sub> PEP Lab performs the following functions:

1. Lot testing of filters;
2. Initial equilibration and taring virgin filters;
3. Initiating the Chain of Custody (COC) Form,
4. Equilibrating and post weighing exposed filters and blanks;
5. Completing the COC forms;
6. Entering the gravimetric results and associated meta data from Field data sheets into the PEP database;
7. Completing the data verification and levels 0 and 1 validations and posting results for the Regional and participating SLT Field scientists to complete level 2 validations, and,
8. Troubleshooting with the Technical Support Contractor to ascertain why certain data points are rejected by AQS when an upload is attempted.

In the October 17, 2006 revisions to the monitoring regulations, a number of continuous PM<sub>2.5</sub> samplers were accepted as candidates for Federal Equivalent Method or Approved Regional Method determinations under 40 CFR Part 53. Each make and model must be approved by the Office of Research and Development before it can be deployed. As these samplers are approved and deployed for the purpose of measuring air concentrations for design values, they are subject to QA requirements in 40 CFR Parts 50, 53, & 58. The PEP program includes the FEM samplers in the current PEP sampling plan.

In 2013, Battelle, under a previous WA, transferred to their internet domain from RTI International a web interface and a database to support the PM<sub>2.5</sub> and Pb PEP, and OAQPS's ambient monitoring protocol gas verification program. Maintenance of this web portal and associated databases, and technical support to the monitoring community



are a key function of this WA. The data and functionality of this web portal with respect to  $PM_{2.5}$ ,  $PM_{10-2.5}$ , and Pb were transferred into Battelle's internet domain as of August 26, 2013, noting a few transition issues needing to be resolved.

### **PM-coarse ( $PM_{10-2.5}$ ) PEP**

$PM_{10-2.5}$  monitoring is to be performed at NCore sites beginning in 2012. A value of PM-coarse is obtained by subtracting a  $PM_{2.5}$  concentration from a PM-10 concentration derived by the same type of monitor over the same time period. A few PEP-like audits for PM-coarse began in 2011 at a few sites. The full complement of the NCore network became subject to audits in 2012 and following. The performance audit will entail collocating a PM-10 version of BGI PQ200s, along with a  $PM_{2.5}$  version (that would ordinarily be placed there for a  $PM_{2.5}$  event) at the site, collecting 24-hour filter samples and taking the difference in filtrate masses. 40 CFR Part 58 Appendix A states that one performance evaluation audit must be performed at one ( $PM_{10-2.5}$ ) site in each primary quality assurance organization each year. In 2012, as a cost reduction measure, the EPA decided to treat the NCore Network as one PQAQ with respect to  $PM_{10-2.5}$ . However, the requirement to subject 15% of the PQAQ network was invoked in order to generate enough data points to provide some confidence in the bias values that would be derived. As a result 2 audits will be conducted in 50% of the Regions and one audit conducted in the other 50%.  $PM_{10-2.5}$  PEP audits were begun in 2012 under the guiding constraints of the  $PM_{2.5}$  QAPP and SOPs since the only difference is essentially the removal of the  $PM_{2.5}$  separator in the FRM sampler for PM-10. Necessary modifications have been made to the SOP, but a few revisions for  $PM_{10-2.5}$  need to be integrated into the  $PM_{2.5}$  QAPP and will be undertaken in this WA.

The EPA in 2008 promulgated revised monitoring regulations for determining ambient Pb concentrations. The initial monitoring phase of the Pb monitoring network deployed high volume samplers for collecting TSP, from which Pb concentrations will be determined through standard FRM/FEM extraction and atomic absorption or inductively coupled plasma mass spectrometry. A few NCore and other sites began low-volume PM-10 sampling in 2011 for Pb, but the majority of the low volume PM-10 Pb began in 2012.

The performance evaluation program (PEP) for high volume Pb monitoring was implemented fully in 2011. EPA Contractors and independent SLT auditors collected PEP filter samples on high volume samplers. However the PEP for the Pb network also involves SLTs generating PEP filters with their own collocated samplers on days not scheduled for precision measurements and sending those to the PEP service laboratory. EPA's service laboratory for the Pb-PEP is located at the EPA Region 9 environmental measurement services laboratory in Richmond California.

The sampling regimen of the Pb PEP is a little more complex than  $PM_{2.5}$ . It requires direct participation by SLT collocated sampling sites as follows:



- PQAOs with  $\leq 5$  sites require 5 "audits." One is performed by an ESAT contractor for the EPA or a STL auditor who is conducting the audit with a completely independent sampler like those used by the EPA. This is called the EPA or SLT Pb-PEP audit. Four collocated samples are taken from SLT precision sites from a SLT-owned collocated sampler which is otherwise used only to generate samples for determining network precision.
- PQAOs with  $> 5$  sites require 8 audits, 2 EPA or SLT Pb-PEP, and 6 collocated samples taken from SLT precision sites.

The Pb-PEP for low volume Pb sampling will utilize the same approach as Hi volume sampling if the sampler are not located at an NCore site. The low-volume PM-10 PEP sampling frequency was modified due to the fact that there are only approximately 20 NCore sites that utilize the sampling method. Consequently the 15% rule would result in only 3 audits per year across the US, which does not produce a statistically useful number of data points. We are therefore implementing a procedure to conduct one PEP audit at every site. There are 5 collocated sites and we have requiring all 5 sites to contribute 4 sample filters on non-precision sampling days. At this writing the expectation is that the Pb detection and quantification will occur by XRF until such time that EPA finalizes a specific wet chemistry FRM or FEM based on ICPMS, and the majority of the SLTs that operate them have their routine filters analyzed with the ICPMS. If a SLTs network includes a site with a low-volume PM-10 sampler, that sampler falls into the population of high volume samplers that get 1 or two independent PEP audits per year, which means it might be selected for a PEP audit once every 6 years.

### III. STATEMENT OF WORK

The Contractor shall provide technical support for the PM<sub>2.5</sub>; the PM<sub>10 - 2.5</sub> and the Pb performance evaluation programs as follows.

#### **Task 1. Work Plan and Cost Estimate for WA**

The Contractor shall meet with the Work Assignment Manager (WAM) to discuss the WA tasks and deliverables. This meeting can be via teleconference. The Contractor shall then prepare and submit a work plan and cost estimate for this WA.

#### **Task 2: Transfer the results of the XRF analysis of 47 mm PM<sub>10</sub> Pb filters and accompanying QC data by the support laboratory to the database on the QA web site.**

The Contractor shall periodically load this data into the Pb-PEP database (Pb-PED). The Low volume Pb-PEP data and the high volume data will be hosted in the same database;



therefore, the EDDS's for both laboratories should provide similar data. This is to facilitate the reporting of all the Pb-PEP results to AQS.

**Task 3: The Contractor shall post all available, validated and approved Pb-PEP, PM<sub>2.5</sub>-PEP, and PM<sub>10-2.5</sub>-PEP data in AQS.**

The EPA Region 4 contractor performs the PM<sub>2.5</sub>/PM<sub>10-2.5</sub> PED validation. The PM<sub>2.5</sub>/PM<sub>10-2.5</sub> database is uploaded to the QA website monthly. The WAM will review with the Contractor how the Pb database program performs the preliminary validation and Regional PEP contacts approve or disapprove of the validations, which may include overriding invalidations.

The Contractor shall resolve any PEP data that the AQS rejects. This typically constitutes 5-20% of the data in a transaction. The resolution may require consultation with the analytical lab and/or the field auditors, and in some cases the SLT monitoring site operators. The Contractor shall document why otherwise valid PEP data cannot be successfully paired with the intended SLTs primary sampler data, or if it is rejected by AQS for another reason.

**Task 4: Provide ongoing Technical Support for PM<sub>2.5</sub>; PM<sub>10-2.5</sub> and Pb-PEP Databases**

- i. The Contractor shall provide technical support to resolve issues regarding access, data entry to COC/FDS forms, data review and correction, data storage, data transfer, and data integration related to the PM<sub>2.5</sub> and PM<sub>10-2.5</sub> PEP Performance Evaluation Databases (PED), the QA website and associated Pb-PEP database. Queries may arise with the Region 4 and 9 service laboratories, the Regional ESAT and SLT PEP field auditors, and SLT Collocated Pb site operators. The Contractor shall be available to respond by telephone and/or electronic mail. Availability of the Contractor to resolve technical problems with the PED shall be made in a timely manner due to the schedule for delivering data to AQS. The Contractor shall provide an initial response by phone or E-mail within 2 days. Historically this effort has required an average of 2 hours per week per program.
- ii. The Contractor shall identify technical inefficiencies with the transfer protocol and validation/approval procedures that can be resolved with program code modifications. The Contractor shall work with the Region 4 Laboratory, the Region 9 laboratory, the XRF laboratory and the OAQPS PM<sub>2.5</sub>/PM<sub>10-2.5</sub> and Pb PEP leads to optimize storing and processing of validated PEP data, and then loading PEP results to the Air Quality System (AQS). The Contractor shall optimize, as necessary, the functionality of the validation reports. This includes further integration of a table on field data verification and optimizing validation based upon a scoring system identified in the PEP QAPP.



- iii. The WAM will direct the Contractor as to which changes should be made. For the purposes of the Work Plan the Contractor should anticipate a minimum 120 hour. The Contractor shall alert the WAM if additional hours are needed to make the code modifications, and shall provide an estimate of the remaining work to implement the needed upgrades or revisions.
- iv. The Contractor shall also revise the Web enabled COC/FDS form for the Pb-PEP. The changes to be made will be identified or illustrated by the WAM in a preliminary meeting prior to the Contractor completing the work plan.
- v. The Contractor shall provide draft language, for approval by the WAM, of revisions to Lab SOPs and the PED User manual to implement necessary changes in procedures to optimize the data storage and validation process.

**Task 5: Revisions to the Pb-PEP Field SOP, the QAPP, and Implementation Guidance to be issued to SLT agencies that provide PEP samples from SLT-owned and operated collocated samplers.**

The Contractor shall participate in 5 conference calls conducted by the WAM to stimulate review and comment by the PEP workgroup. The Contractor shall record all the comments. The WAM will review the comments and provide direction on which ones should be either affirmatively responded to or disregarded. The revisions to the Implementation Guidance will be based on draft revisions to the Pb- PEP Field SOP, the QAPP, and draft language provided by the WAM. The WAM will provide a current draft of the existing documents upon issuance of the WA and prior to completion of the work plan.

**Task 6: 2012 annual PEP Report and a draft of the 2013 report.**

The report shall compile results for  $PM_{2.5/10-2.5}$ , and low-and high-volume PB.

Under a previous contract and WA, the Contractor created a utility to generate spreadsheets and graphic representations of different data sets collected by the PEP and stored in the PED or as separate documents. The  $PM_{2.5}$  and  $PM_{10-2.5}$  PED and templates of the data extractions were supplied to the Contractor for this WA. (The utility was envisioned to ultimately enable Regional PEP Contacts to view the available PEP data at any time from the QA website.) From this data an annual report with more detail is compiled. The Contractor shall construct a draft of the Report for 2012. The analyses for the reports shall comply with all QA/QC requirements specified in the current Quality Assurance Project Plan for the  $PM_{2.5}$  and  $PM_{10-2.5}$  Performance Evaluation Programs, and 40 CFR Part 58 Appendix A. The Report for 2011 will be provided as an example.



The PM<sub>10</sub> - 2.5 PEP formally commenced in calendar 2012. The PM coarse data will be hosted by the PM<sub>2.5</sub>-PEP database since the data is generated in an identical manner and the service lab for this effort will be the same.

Data compiled in such a way that historical data of the same kind (e.g. completeness and bias) can be arrayed for comparison and identification of trends. These comparisons will be enumerated in the annual and 3-year reports. The 2010-2012 data will be compiled and the report drafted in 2014. The annual report shall consist of the following:

- i. For PM<sub>2.5</sub> and PM<sub>10-2.5</sub>
  - Audit results from the PM<sub>2.5</sub> and PM<sub>10</sub> - 2.5 PEP vs. FRM/FEM National Network Sampler events in spreadsheet form and plotted graph. Levels of aggregation shall be by National network, State and Region and subdivided by the PEPs PM separator; another analysis shall examine data by SLTs Sampler make/model subdivided by PM separator-WINS impactor or very sharp cut cyclone. PEP Results Data shall be represented as: Scatter-plots of SLT Routine Sampler vs. PEP Sampler.
  - Plots of Percent relative difference between the PEP samplers' measurements of concentration vs. the FRM/FEM sampler's measurement of concentration over the period of the report (2012 or 2013) and then combined with the historical data since 2005. (The period from 2006-2008 experienced a noticeable downward trend in bias network wide.)

All data in the circumstance when either the PEP or the SLTs derived concentration is less than 6 $\mu$ /m<sup>3</sup> shall be aggregated; the difference,  $C_{SLT} - C_{PEP}$ , shall be plotted against concentration as measured by the PEP sampler. The Contractor shall devise an advisory limit for difference in concentrations when either of the values is less than 6 $\mu$ /m<sup>3</sup>. The Contractor shall propose the metric, e.g., a 2-sigma analysis, and outcome for review by the WAM and the PEP work group.

If a PEP audit has been conducted where a SLT FEM sampler is collocated with an FRM, the difference or relative percent difference with respect to both FEM and FRM should be determined and plotted on the same graph. Because AQS will only pair the PEP data with the SLTs primary sampler data, this will require mining some of the FEM data or the FRM data from raw data in AQS, depending on which one the SLT has designated as the non-primary sampler. For those events where the difference outside the advisory limit, the site will be identified by location and reported directly to the Regional PEP Pb and SLT monitoring agency. The WAM will provide a list of SLT contacts so the bias advisories can be forwarded.



Results of Semi-Annual QC tests and verifications, e.g. internal audits, conducted by the supporting gravimetric laboratory and the field scientists.

ii. For Low- and High-Volume Pb

1. Several factors influence the way data is aggregated and present for Pb-PEP:
  - a) FEMs are very limited in number, scope and use.
  - b) The national ambient Pb network is much smaller than the PM<sub>2.5</sub> network; therefore the total number of PEP data points is smaller on an annual basis and a cumulative basis.
  - c) With respect to the new NAAQS, the network and the PEP are quite young
  - d) There are two types of bias data. One generated by truly independent PEP auditors and the other generated from samples pulled from network collocated samplers. In this latter case the sampler is probably operated by routine site operator, who also collects the PEP sample and ships it to the analytical support laboratory.
  - e) The level of the NAAQS, and in most locations the ambient levels of Pb, are fractions of a microgram per cubic meter as compared to micrograms for PM<sub>2.5</sub>. This can potentially lead to wide scatter and artificially inflated bias. One countermeasure is that the high volume samplers collect larger mass loadings so that precision on a given high-volume filter is better. There has been too little data generated thus far with respect to the low-volume data to ascertain the typical concentrations and what we might anticipate in terms of the effect on bias.
2. The PEP results data should therefore be represented as:
  - a) Scatter-plots of SLT Routine Sampler vs. combined PEP Sampler and SLT collocated samplers that provided a sample to PEP.
  - b) Separate scatter plots of SLT Routine Sampler vs. PEP Sampler, and SLT Routine Sampler vs. SLT collocated samplers that provided a sample to PEP.
  - c) Percent relative difference between the PEP samplers' measurements of concentration vs. the FRM/FEM sampler's measurement of concentration over the period of the year 2012 and then combined with the historical data since 2011. The WAM and the PEP Workgroup will review the data to ascertain whether the current ambient Pb concentration cut-off specified in 40 CFR Part 58 appendix A will allow a sufficient number of the data points to be included in the bias statistic.

## **STATEMENT OF WORK**

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**II. PROJECT BACKGROUND**

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#### **PM<sub>2.5</sub> QA Activities**

Precision for the PM<sub>2.5</sub> FRM/FEM network, as specified in 40 CFR Part 58 Appendix A as of October 17, 2006, is determined by collocating a replicate sampler at 15% of the existing sites and taking a sample at least once every 4th FRM sampling event, (every 12 days). An average coefficient of variation between like samplers is calculated for each sampler type and for the network for each year. Precision for the CSN is determined by collocated sampling at 6 sites STN/NCore sites established in the early design of the STN.

The activities associated with the measurements, analyses and determination of bias of the PM<sub>2.5</sub> FRM/FEM networks is called the Performance Evaluation Program (PM<sub>2.5</sub> - PEP). The procedure is to collocate a portable FRM audit sampler with a FRM sampler at an established State, Local or Tribal (SLT) routine air monitoring site, collect a 24-hour sample with each sampler, and then store the resultant concentration data from the audit sampler in the Air Quality System (AQS) database. The network bias is calculated from data from the PEP sampler that is compared with the routine sampler data derived



on the same sampling date. Under the 2006 revised regulations, PM<sub>2.5</sub>-PEP collocated sampling was reduced from 25% down to 15% of the network each year beginning in 2007. The rule changes also called for consolidating the current FRM Reporting organizations in each State, independent local agency or Tribal Agency into Primary Quality Assurance Organizations (PQAO) for the purpose of conducting a less costly PEP program. Primary quality assurance organizations with 5 or less PM<sub>2.5</sub> monitoring sites would be required to have at least 5 valid audits per year ideally distributed across 4 calendar quarters; primary quality assurance organizations with greater than 5 sites would be required to have 8 valid audits per year distributed across the 4 quarters. (All sampling method designations should be covered in a given year.)

The gravimetric analytical support work is performed by a contractor supported laboratory located at EPA Region 4 Science & Ecosystems Support Division in Athens Georgia. The PM<sub>2.5</sub> PEP Lab performs the following functions:

1. Lot testing of filters;
2. Initial equilibration and taring virgin filters;
3. Initiating the Chain of Custody (COC) Form,
4. Equilibrating and post weighing exposed filters and blanks;
5. Completing the COC forms;
6. Entering the gravimetric results and associated meta data from Field data sheets into the PEP database;
7. Completing the data verification and levels 0 and 1 validations and posting results for the Regional and participating SLT Field scientists to complete level 2 validations, and,
8. Troubleshooting with the Technical Support Contractor to ascertain why certain data points are rejected by AQS when an upload is attempted.

In the October 17, 2006 revisions to the monitoring regulations, a number of continuous PM<sub>2.5</sub> samplers were accepted as candidates for Federal Equivalent Method or Approved Regional Method determinations under 40 CFR Part 53. Each make and model must be approved by the Office of Research and Development before it can be deployed. As these samplers are approved and deployed for the purpose of measuring air concentrations for design values, they are subject to QA requirements in 40 CFR Parts 50, 53, & 58. The PEP program includes the FEM samplers in the current PEP sampling plan.

In 2013, Battelle, under a previous WA, transferred to their internet domain from RTI International a web interface and a database to support the PM<sub>2.5</sub> and Pb PEP, and OAQPS's ambient monitoring protocol gas verification program. Maintenance of this web portal and associated databases, and technical support to the monitoring community



are a key function of this WA. The data and functionality of this web portal with respect to  $PM_{2.5}$ ,  $PM_{10-2.5}$ , and Pb were transferred into Battelle's internet domain as of August 26, 2013, noting a few transition issues needing to be resolved.

### **PM-coarse ( $PM_{10-2.5}$ ) PEP**

$PM_{10-2.5}$  monitoring is to be performed at NCore sites beginning in 2012. A value of PM-coarse is obtained by subtracting a  $PM_{2.5}$  concentration from a PM-10 concentration derived by the same type of monitor over the same time period. A few PEP-like audits for PM-coarse began in 2011 at a few sites. The full complement of the NCore network became subject to audits in 2012 and following. The performance audit will entail collocating a PM-10 version of BGI PQ200s, along with a  $PM_{2.5}$  version (that would ordinarily be placed there for a  $PM_{2.5}$  event) at the site, collecting 24-hour filter samples and taking the difference in filtrate masses. 40 CFR Part 58 Appendix A states that one performance evaluation audit must be performed at one ( $PM_{10-2.5}$ ) site in each primary quality assurance organization each year. In 2012, as a cost reduction measure, the EPA decided to treat the NCore Network as one PQAQO with respect to  $PM_{10-2.5}$ . However, the requirement to subject 15% of the PQAQO network was invoked in order to generate enough data points to provide some confidence in the bias values that would be derived. As a result 2 audits will be conducted in 50% of the Regions and one audit conducted in the other 50%.  $PM_{10-2.5}$  PEP audits were begun in 2012 under the guiding constraints of the  $PM_{2.5}$  QAPP and SOPs since the only difference is essentially the removal of the  $PM_{2.5}$  separator in the FRM sampler for PM-10. Necessary modifications have been made to the SOP, but a few revisions for  $PM_{10-2.5}$  need to be integrated into the  $PM_{2.5}$  QAPP and will be undertaken in this WA.

The EPA in 2008 promulgated revised monitoring regulations for determining ambient Pb concentrations. The initial monitoring phase of the Pb monitoring network deployed high volume samplers for collecting TSP, from which Pb concentrations will be determined through standard FRM/FEM extraction and atomic absorption or inductively coupled plasma mass spectrometry. A few NCore and other sites began low-volume PM-10 sampling in 2011 for Pb, but the majority of the low volume PM-10 Pb began in 2012.

The performance evaluation program (PEP) for high volume Pb monitoring was implemented fully in 2011. EPA Contractors and independent SLT auditors collected PEP filter samples on high volume samplers. However the PEP for the Pb network also involves SLTs generating PEP filters with their own collocated samplers on days not scheduled for precision measurements and sending those to the PEP service laboratory. EPA's service laboratory for the Pb-PEP is located at the EPA Region 9 environmental measurement services laboratory in Richmond California.

The sampling regimen of the Pb PEP is a little more complex than  $PM_{2.5}$ . It requires direct participation by SLT collocated sampling sites as follows:



- PQAOs with  $\leq 5$  sites require 5 "audits." One is performed by an ESAT contractor for the EPA or a STL auditor who is conducting the audit with a completely independent sampler like those used by the EPA. This is called the EPA or SLT Pb-PEP audit. Four collocated samples are taken from SLT precision sites from a SLT-owned collocated sampler which is otherwise used only to generate samples for determining network precision.
- PQAOs with  $> 5$  sites require 8 audits, 2 EPA or SLT Pb-PEP, and 6 collocated samples taken from SLT precision sites.

The Pb-PEP for low volume Pb sampling will utilize the same approach as Hi volume sampling if the sampler are not located at an NCore site. The low-volume PM-10 PEP sampling frequency was modified due to the fact that there are only approximately 20 NCore sites that utilize the sampling method. Consequently the 15% rule would result in only 3 audits per year across the US, which does not produce a statistically useful number of data points. We are therefore implementing a procedure to conduct one PEP audit at every site. There are 5 collocated sites and we have requiring all 5 sites to contribute 4 sample filters on non-precision sampling days. At this writing the expectation is that the Pb detection and quantification will occur by XRF until such time that EPA finalizes a specific wet chemistry FRM or FEM based on ICPMS, and the majority of the SLTs that operate them have their routine filters analyzed with the ICPMS. If a SLTs network includes a site with a low-volume PM-10 sampler, that sampler falls into the population of high volume samplers that get 1 or two independent PEP audits per year, which means it might be selected for a PEP audit once every 6 years.

### III. STATEMENT OF WORK

The Contractor shall provide technical support for the PM<sub>2.5</sub>; the PM<sub>10 - 2.5</sub> and the Pb performance evaluation programs as follows.

#### **Task 1. Work Plan and Cost Estimate for WA**

The Contractor shall meet with the Work Assignment Manager (WAM) to discuss the WA tasks and deliverables. This meeting can be via teleconference. The Contractor shall then prepare and submit a work plan and cost estimate for this WA.

#### **Task 2: Transfer the results of the XRF analysis of 47 mm PM<sub>10</sub> Pb filters and accompanying QC data by the support laboratory to the database on the QA web site.**

The Contractor shall periodically load this data into the Pb-PEP database (Pb-PED). The Low volume Pb-PEP data and the high volume data will be hosted in the same database;



therefore, the EDDS's for both laboratories should provide similar data. This is to facilitate the reporting of all the Pb-PEP results to AQS.

**Task 3: The Contractor shall post all available, validated and approved Pb-PEP, PM<sub>2.5</sub>-PEP, and PM<sub>10-2.5</sub>-PEP data in AQS.**

The EPA Region 4 contractor performs the PM<sub>2.5</sub>/PM<sub>10-2.5</sub> PED validation. The PM<sub>2.5</sub>/PM<sub>10-2.5</sub> database is uploaded to the QA website monthly. The WAM will review with the Contractor how the Pb database program performs the preliminary validation and Regional PEP contacts approve or disapprove of the validations, which may include overriding invalidations.

The Contractor shall resolve any PEP data that the AQS rejects. This typically constitutes 5-20% of the data in a transaction. The resolution may require consultation with the analytical lab and/or the field auditors, and in some cases the SLT monitoring site operators. The Contractor shall document why otherwise valid PEP data cannot be successfully paired with the intended SLTs primary sampler data, or if it is rejected by AQS for another reason.

**Task 4: Provide ongoing Technical Support for PM<sub>2.5</sub>; PM<sub>10-2.5</sub> and Pb-PEP Databases**

- i. The Contractor shall provide technical support to resolve issues regarding access, data entry to COC/FDS forms, data review and correction, data storage, data transfer, and data integration related to the PM<sub>2.5</sub> and PM<sub>10-2.5</sub> PEP Performance Evaluation Databases (PED), the QA website and associated Pb-PEP database. Queries may arise with the Region 4 and 9 service laboratories, the Regional ESAT and SLT PEP field auditors, and SLT Collocated Pb site operators. The Contractor shall be available to respond by telephone and/or electronic mail. Availability of the Contractor to resolve technical problems with the PED shall be made in a timely manner due to the schedule for delivering data to AQS. The Contractor shall provide an initial response by phone or E-mail within 2 days. Historically this effort has required an average of 2 hours per week per program.
- ii. The Contractor shall identify technical inefficiencies with the transfer protocol and validation/approval procedures that can be resolved with program code modifications. The Contractor shall work with the Region 4 Laboratory, the Region 9 laboratory, the XRF laboratory and the OAQPS PM<sub>2.5</sub>/PM<sub>10-2.5</sub> and Pb PEP leads to optimize storing and processing of validated PEP data, and then loading PEP results to the Air Quality System (AQS). The Contractor shall optimize, as necessary, the functionality of the validation reports. This includes further integration of a table on field data verification and optimizing validation based upon a scoring system identified in the PEP QAPP.



- iii. The WAM will direct the Contractor as to which changes should be made. For the purposes of the Work Plan the Contractor should anticipate a minimum 120 hour. The Contractor shall alert the WAM if additional hours are needed to make the code modifications, and shall provide an estimate of the remaining work to implement the needed upgrades or revisions.
- iv. The Contractor shall also revise the Web enabled COC/FDS form for the Pb-PEP. The changes to be made will be identified or illustrated by the WAM in a preliminary meeting prior to the Contractor completing the work plan.
- v. The Contractor shall provide draft language, for approval by the WAM, of revisions to Lab SOPs and the PED User manual to implement necessary changes in procedures to optimize the data storage and validation process.

**Task 5: Revisions to the Pb-PEP Field SOP, the QAPP, and Implementation Guidance to be issued to SLT agencies that provide PEP samples from SLT-owned and operated collocated samplers.**

The Contractor shall participate in 5 conference calls conducted by the WAM to stimulate review and comment by the PEP workgroup. The Contractor shall record all the comments. The WAM will review the comments and provide direction on which ones should be either affirmatively responded to or disregarded. The revisions to the Implementation Guidance will be based on draft revisions to the Pb- PEP Field SOP, the QAPP, and draft language provided by the WAM. The WAM will provide a current draft of the existing documents upon issuance of the WA and prior to completion of the work plan.

**Task 6: 2012 annual PEP Report and a draft of the 2013 report.**

The report shall compile results for  $PM_{2.5/10-2.5}$ , and low-and high-volume PB.

Under a previous contract and WA, the Contractor created a utility to generate spreadsheets and graphic representations of different data sets collected by the PEP and stored in the PED or as separate documents. The  $PM_{2.5}$  and  $PM_{10-2.5}$  PED and templates of the data extractions were supplied to the Contractor for this WA. (The utility was envisioned to ultimately enable Regional PEP Contacts to view the available PEP data at any time from the QA website.) From this data an annual report with more detail is compiled. The Contractor shall construct a draft of the Report for 2012. The analyses for the reports shall comply with all QA/QC requirements specified in the current Quality Assurance Project Plan for the  $PM_{2.5}$  and  $PM_{10-2.5}$  Performance Evaluation Programs, and 40 CFR Part 58 Appendix A. The Report for 2011 will be provided as an example.



The PM<sub>10</sub> - 2.5 PEP formally commenced in calendar 2012. The PM coarse data will be hosted by the PM<sub>2.5</sub>-PEP database since the data is generated in an identical manner and the service lab for this effort will be the same.

Data compiled in such a way that historical data of the same kind (e.g. completeness and bias) can be arrayed for comparison and identification of trends. These comparisons will be enumerated in the annual and 3-year reports. The 2010-2012 data will be compiled and the report drafted in 2014. The annual report shall consist of the following:

- i. For PM<sub>2.5</sub> and PM<sub>10-2.5</sub>
  - Audit results from the PM<sub>2.5</sub> and PM<sub>10</sub> - 2.5 PEP vs. FRM/FEM National Network Sampler events in spreadsheet form and plotted graph. Levels of aggregation shall be by National network, State and Region and subdivided by the PEPs PM separator; another analysis shall examine data by SLTs Sampler make/model subdivided by PM separator-WINS impactor or very sharp cut cyclone. PEP Results Data shall be represented as: Scatter-plots of SLT Routine Sampler vs. PEP Sampler.
  - Plots of Percent relative difference between the PEP samplers' measurements of concentration vs. the FRM/FEM sampler's measurement of concentration over the period of the report (2012 or 2013) and then combined with the historical data since 2005. (The period from 2006-2008 experienced a noticeable downward trend in bias network wide.)

All data in the circumstance when either the PEP or the SLTs derived concentration is less than 6 $\mu$ /m<sup>3</sup> shall be aggregated; the difference,  $C_{SLT} - C_{PEP}$ , shall be plotted against concentration as measured by the PEP sampler. The Contractor shall devise an advisory limit for difference in concentrations when either of the values is less than 6 $\mu$ /m<sup>3</sup>. The Contractor shall propose the metric, e.g., a 2-sigma analysis, and outcome for review by the WAM and the PEP work group.

If a PEP audit has been conducted where a SLT FEM sampler is collocated with an FRM, the difference or relative percent difference with respect to both FEM and FRM should be determined and plotted on the same graph. Because AQS will only pair the PEP data with the SLTs primary sampler data, this will require mining some of the FEM data or the FRM data from raw data in AQS, depending on which one the SLT has designated as the non-primary sampler. For those events where the difference outside the advisory limit, the site will be identified by location and reported directly to the Regional PEP Pb and SLT monitoring agency. The WAM will provide a list of SLT contacts so the bias advisories can be forwarded.



Results of Semi-Annual QC tests and verifications, e.g. internal audits, conducted by the supporting gravimetric laboratory and the field scientists.

ii. For Low- and High-Volume Pb

1. Several factors influence the way data is aggregated and present for Pb-PEP:
  - a) FEMs are very limited in number, scope and use.
  - b) The national ambient Pb network is much smaller than the PM<sub>2.5</sub> network; therefore the total number of PEP data points is smaller on an annual basis and a cumulative basis.
  - c) With respect to the new NAAQS, the network and the PEP are quite young
  - d) There are two types of bias data. One generated by truly independent PEP auditors and the other generated from samples pulled from network collocated samplers. In this latter case the sampler is probably operated by routine site operator, who also collects the PEP sample and ships it to the analytical support laboratory.
  - e) The level of the NAAQS, and in most locations the ambient levels of Pb, are fractions of a microgram per cubic meter as compared to micrograms for PM<sub>2.5</sub>. This can potentially lead to wide scatter and artificially inflated bias. One countermeasure is that the high volume samplers collect larger mass loadings so that precision on a given high-volume filter is better. There has been too little data generated thus far with respect to the low-volume data to ascertain the typical concentrations and what we might anticipate in terms of the effect on bias.
2. The PEP results data should therefore be represented as:
  - a) Scatter-plots of SLT Routine Sampler vs. combined PEP Sampler and SLT collocated samplers that provided a sample to PEP.
  - b) Separate scatter plots of SLT Routine Sampler vs. PEP Sampler, and SLT Routine Sampler vs. SLT collocated samplers that provided a sample to PEP.
  - c) Percent relative difference between the PEP samplers' measurements of concentration vs. the FRM/FEM sampler's measurement of concentration over the period of the year 2012 and then combined with the historical data since 2011. The WAM and the PEP Workgroup will review the data to ascertain whether the current ambient Pb concentration cut-off specified in 40 CFR Part 58 appendix A will allow a sufficient number of the data points to be included in the bias statistic.

- d) Annual and quarterly completeness by Region and by Primary Quality Assurance Organization (PQAO) based on number of legitimate data pairs (network-PEP) vs. the number of audits that were supposed to have been conducted according to the number of sites in the target networks and actual number of audits conducted. These findings will also include:
  - i. PEP data points are not matched with SLT results by date, and any stated reason why the SLT sampler data does not exist for that date;
  - ii. Dates where the ambient concentration determined by either SLT or PEP sampler is  $\leq 3\mu\text{g}/\text{m}^3$ , (which renders the pair invalid for the purposes of determining network bias), or ;
  - iii. The PEP or SLT data point for a given PEP event was invalid for any other reason. The reason for invalidation will also be identified, and,
  - iv. Identification of PEP audits that were conducted on samplers that were not part of the national  $\text{PM}_{2.5}$  SLAMS network but were special purpose monitors or Tribal monitors. If these samplers were listed as non-regulatory in AQS their data shall not be counted in the QA Bias statistics for the SLAMs network, but shall be identified and included in the QA/QC reports for the PEP.
- 3. Results from independent, ICP MS, or XRF PE or PTs administered by OAQPS or EPA, ORIA, NAREL, Montgomery, AL.

**I. Programmatic Data Applicable to both  $\text{PM}_{2.5/10-2.5}$ , and Low and High-Volume PB PEP**

- 1. Parking lot study precision results by which specific PEP samplers in the national fleet that appear to generate abnormal results, shall be identified. The data shall be presented for:
  - i. The national program and for each Region with and without SLTs that have assumed field operations and/or lab operations; and also by each SLT;
  - ii. The "parking lot" data shall be made available for retrieval by the WAM and the Regional PEP contacts on an ongoing basis; and,
  - iii. Follow-up actions from parking lot collocation studies in each Region, or National and Regional collocation studies.



2. Annual reviews of records and audits of field and analytical personnel and their respective activities in the PEP. These include reviews and audits of SLT implemented programs. The Regional PEP contacts are supposed to conduct one of these every year.
  - i. Note that for PM<sub>2.5</sub> and PM coarse and low-volume Pb, the evaluation of field scientists, training, semi-annual parking lot events and conference calls will be coincident.
3. Other Elements, activities and data that should be included in the detailed QA/QC report:
  - i. Significant events that occur at the Regional level such as natural disasters, accidents, terrorism, or other catastrophes that affect the operation of the PEP; or National or international events, e.g., Olympics or War;
  - ii. Attendance records, session notes and action items from National Training conference calls and training activities;
  - iii. Record of all teleconferences and meetings regarding Changes to SOPs and QAPP; and,
  - iv. Special Field activities or studies, e.g. comparisons of different samplers, separators or methods for collecting field blanks.

## **II. Additional Analyses**

1. The Contractor shall identify any indicators that suggest new or further analyses are warranted. The WAM will provide additional directives if more analyses are necessary. The need for additional hours will be assessed at that time.

### **Task 7: Provide Support for PEP Field Operations Training for PM<sub>2.5</sub>, PM<sub>10-2.5</sub> and Pb**

The certification events that involve hands-on training will encompass PM<sub>2.5</sub>, PM<sub>10-2.5</sub> and High-and low-volume Pb. Web-based exercises will be grouped by PM<sub>2.5</sub>/PM Coarse or High-and low-volume Pb.

#### **i. General Materials Preparations:**

The Contractor shall prepare training class materials for each training session, which shall include:

- 1) Class roll and attendance list in an Excel spreadsheet format,;
- 2) Training agenda;

- 3) Assembled Filter Shipping packages with shipping labels, labeled filter cassettes, Chain-of-Custody Forms and Field Data Sheets, EPA will supply all the materials;
- 4) CDs with current versions of resource materials and special presentations for the current year training course such as Collocation Study results, Bias results by Regions, and Field Blank results from the preceding year, the current Field SOP, the QAPP, and important operators manuals, e.g. the BGI PQ200A and HiQ or Tisch high volume TSP samplers and the BGI HiVol Cal and Tetra Cal multi calibrators; and,
- 5) Resource materials shall also be made available on the QA Website.

**ii. PM<sub>2.5</sub> & PM<sub>10-2.5</sub> Training Course Materials**

- 1) In previous WAs, a pre-training-course study exercise was created for new PM<sub>2.5</sub> - PEP field operators that must attend initial certification training. Trainees submit this exercise for grading when they arrive for class. The Contractor shall review this exercise for outdated material and revise according to the current SOPs and QAPP.
- 2) A list of 150 written exam questions that will be used in the training courses has also been compiled previously. For the physically-attended course, the Contractor shall review the written exam for outdated material and revise it according to the current SOP and QAPP. They shall choose 100 exam questions for the upcoming course and generate an answer key for the instructor staff. EPA will print these questions prior to the training course.

**iii. Pb-PEP Training Course Support**

- 1) The Contractor shall review Pb-PEP training material for new field scientists based on the Field Activities SOP and draft QAPP that currently exist. The WAM will provide MS Word and PDF file copies. The Contractor shall identify differences in the training materials from 2011 and 2012. These materials shall include:
  - a. A summary of key elements from the current draft QAPP that Field and Lab scientists should be aware of in the current implementation activities;
  - b. A pre-training-course study exercise that must be completed by trainees and turned in upon arrival at the certification training;
  - c. A draft list of 75 written exam questions that could be used to cover important facts or concepts and activities to be learned during training courses; and,
  - d. The Contractor shall recommend 50 exam questions for the annual certification/recertification and generate an answer key for the instructor staff.



The WAM will approve these or direct inclusion of other questions. EPA will print and distribute the exam during the training course.

**iv. PM<sub>2.5</sub>, PM<sub>10-2.5</sub> and Pb Field SOP Revisions**

- 1) The PM<sub>2.5</sub> and PM-Coarse PEP Field SOP is subject to minor revisions each year particularly during training activities. The Contractor shall compile comments on implementation issues of the SOP provided by field scientists and Regional State, local and Tribal agency associated with the PEP during training sessions and coordinated conference calls. Annual revisions to the QAPP that evoke SOP changes will also be included in the compilation and vice versa. The compilation will be distributed to the Regional PEP leads. The review and finalization of the revisions will occur in a subsequent WA in the next option period.

**Task 8. Maintain Database for Storage of Auditor Certification Data**

This database is accessible through the QA web portal. The Contractor shall finalize the Excel template devised in the previous WA for OAQPS and Regional Trainers to record registration and graduation from all QA training activities regarding ambient air monitoring programs. The Contractor shall use the Excel template to update current certifications of those who complete the training requirements. This template will be transferred by OAQPS to the Contractor at the end of any quarter in which certification training was conducted. The Contractor shall maintain the routine functionality of the database to report the current certification status of the listed participants.

**Task 9. Perform XRF analysis of Teflon® filters for Pb deposition**

**i. Analyze Confirmatory Analysis Samples**

The Contractor shall analyze 6 audit filters whose Pb content has been independently confirmed to demonstrate competency for analyzing for Pb using XRF. The results of the audit samples shall be discussed and compared to historical precision estimates before proceeding to the following tasks.

**ii. XRF Analysis of Pb-PEP 46.2mm Teflon® Filters**

The Pb-PEP requires the analysis of approximately 150 46.2mm Teflon® low volume filters. Battelle shall complete the following tasks related to the analysis and handling of the filters, and data review.

**a. Sample Receipt**

The XRF laboratory can expect to receive approximately 150 46.2mm Teflon® filters annually. The filters are not expected to arrive on a routine schedule. The audit filter media originate from the Region 4 filter weighing laboratory, and the



auditor originates the Chain of Custody. Audits are completed according to individual schedules set in the EPA regions; therefore, the laboratory shall be flexible in receiving and batching filters. Samples will arrive in cassettes at ambient temperature with a Chain of Custody from the auditor. Monthly, the laboratory shall return the cassettes to the Region 4 laboratory. Shipping costs shall be covered by the EPA shipping contract with UPS. Currently, there is a backlog of audit filters, and the laboratory can expect several shipments of 20 to 30 filters for analysis.

**b. Conduct the XRF Analysis**

There is no published holding time for the XRF filters; however, Pb-PEP requests that filters should be analyzed within 30 days. The XRF laboratory shall meet the following quality control requirements and Pb-PEP program requirements as stated in the Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II, May 2013. The applicable references for XRF laboratory activities are below:

Laboratory Activities (XRF Analysis)			
Filter Holding Times <i>Pre-sampling</i>	<i>all filters</i>	<i>&lt; 30 days before sampling</i>	1,2 and 3) 40 CFR Part 50, App L, Sec 8.3.5  Required only if filters will be used for PM10c mass as well as Pb. If only used for Pb then 30 day pre-sampling holding time not required
Analysis Audits	<i>6 filters/quarter 3 at each concentration range</i>	10% (percent difference)	1 and 2) 40 CFR Part 58, App A, sec 3.3.4.2 3) Recommendation
Field Filter Blank	1/quarter	$< 0.01 \mu\text{g}/\text{m}^3$	1) 40 CFR Part 50 App Q sec 6.1.2.1 2 and 3) Recommendation
Lab Filter Blank	1/ sample run	$< .003 \mu\text{g}/\text{m}^3$	1 40 CFR part 50 App Q sec 6.1.2.1 2 and 3) Recommendation
Thin Film Standards (standard reference materials)	Beginning and end of each analytical run	XRF conc. $\pm$ 3x the 1 sigma uncertainty overlaps the NIST certified conc. $\pm$ 1x its reported uncertainty.	1) 40 CFR Part 50 App Q sec 6.2.3 2 and 3) recommendation
Run time quality control standards	Beginning and end of each analytical run	Target value $\pm$ 3 SD	1,2, and 3) Recommendation
Checking peak areas, background areas, centroid and FWHM			Target values and SD of QC samples established prior to analysis.
XRF analyzer calibration	<i>1/year or when significant repairs or changes occur or QC limits exceeded</i>	XRF conc. $\pm$ 3x the 1 sigma uncertainty overlaps the NIST certified conc. $\pm$ 1x its reported uncertainty.	1 and 2) 40 CFR Part 50 App Q sec 6.2.4 3) Recommendation
Background Measurement and Correction	<i>20 clean blank filters for each filter lot used</i>	NA	1 and 2) 40 CFR Part 50 App Q sec 6.2.4.2

**c. Data Processing, Validation, and Reporting**

The XRF laboratory shall conduct quality assurance on the XRF data generated as a component of the validation procedure. The data shall also be subject to the routine quality control built into the XRF laboratories quality system. Upon validation, the data shall be submitted to the AIRQA website operated by Battelle. This website is under development, but should be live shortly. The XRF



laboratory must coordinate with Battelle to upload the data. The data should be uploaded to AIR QA in batches, not individually. The data package for transmittal to AIRQA contains the following documents:

1. Chain of Custody – Each filter received shall have its own chain of custody that was originated by the auditor and completed by the laboratory.
2. Lab Report – Each batch shall have a report generated by the laboratory that summarizes samples analyzed, quality assurance/control, results, XRF run details, and detection limits and flags.
3. Electronic Data Deliverable – Each batch shall also have an electronic data deliverable (EDD) to allow electronic pairing of laboratory data with corresponding field data. The AIRQA website requires an Excel spreadsheet with specific formatting. An example EDD is attached to this WA. As the new version of the AIRQA website is created, the format could change. The laboratory should coordinate with Battelle to ensure compatibility.

Low volume XRF data shall be loaded into AIRQA on a monthly basis per Tasks 2 & 3.

#### VI. Schedule of Tasks and Deliverables

Task or Deliverable	Due Date
Task 1 Work Plan	In accordance with the contract.
Task 2: Transfer XRF Data from lab to QA web data base	Monthly assuming filters have been submitted to DRI for analysis
Task 3. Post available PEP data on AQS	first half of 2013.....1/31/2014 second half of 2013.....2/28/2014 first half of 2014 .....11/30/2014
Task 4. 1 Technical Support for PEP Data Bases, data recording, transfer, storage and validation	Ongoing though 12/31/2014
Task 4.2. Make COC/FDS webform revisions; other program code revisions	3/15/2014 As directed through 12/31/2014
Task 5. Pb PEP Revised Field SOP ..... Revised Draft QAPP formal review version..... and SLT implementation guidance	02/28/2014 04/30
Task 6 Annual PEP Report for 2012 Draft Final	02/28/2014 30 days after comments from WAM

Contractor: Battelle Memorial Institute  
Work Assignment Number: 2-04

Contract Number: EP-D-13-005  
Work Assignment Manager: Dennis Crumpler  
Alternate Work Assignment Manager: Greg Noah

Task or Deliverable	Due Date
Annual PEP Report for 2013 Draft Final	08/31/2014 30 days after comments from WAM
Task 7.1,2&3 PM <sub>2.5</sub> and PM <sub>10-2.5</sub> field activities SOP Training Materials;	03/15/2014
Tasks 7.4 Draft of SOP Revisions resulting from comments during training course	4/30/2014
Task 8: maintain Auditor Certification data base	Quarterly uploads if needed
TASK9 i. Analyze Confirmatory Analysis Samples	Once every 6 months as filters provided by OAQPS
TASK 9ii.a. XRF Analysis, sample receipt	Upon arrival of filters
TASK 9ii.b. conduct XRF analysis	Upon arrival of filters
TASK 9ii.c. XRF data processing, validation, and reporting;	Upon completion of analysis. The audit data should be loaded into the AIRQA website within 60 days of the sample run day. Last Group reported to QA Website by December 15, 2014

## VI. DELIVERABLES

In accordance with the terms of the contract, the Contractor shall submit a cost estimate for accomplishing this work assignment. The estimated cost shall include all categories of direct labor, overhead, special testing, consultant and subcontractor costs, other direct costs, and estimated fee. In addition to the cost estimate, the Contractor shall submit a work plan. The work plan shall include an introduction, project approach, schedule of work, and staffing.

The Contractor shall submit monthly progress reports which summarize the overall progress plus a description for each task or logical segment of work on which effort was expended during the month. Any problems (Technical or administrative) that have developed shall be listed and shall continue to be listed until resolved. The report shall include a section showing cost and labor hours expended to date, and projected expenditures and labor hours at completion. Each report shall be submitted in accordance with the terms of the contract.

All draft, final draft or final documents should be submitted as electronic digital files on a compact disc in both PDF and Microsoft Word for Windows format. The Contractor



Contractor: Battelle Memorial Institute  
Work Assignment Number: 2-04

Contract Number: EP-D-13-005  
Work Assignment Manager: Dennis Crumpler  
Alternate Work Assignment Manager: Greg Noah

---

should remain cognizant of the current version of Microsoft Word that the EPA is using.  
At this time Microsoft VISTA products are not acceptable formats.

During the period of performance of this assignment, the Contractor shall immediately inform the WAM by telephone of any problems that may impede performance along with any corrective action needed by the Contractor or EPA to solve the problem.

[END]

<b>EPA</b> United States Environmental Protection Agency Washington, DC 20460 <b>Work Assignment</b>		Work Assignment Number 2-04	
		<input type="checkbox"/> Other <input checked="" type="checkbox"/> Amendment Number: 000001	
Contract Number EP-D-13-005	Contract Period 01/01/2014 To 12/31/2014		Title of Work Assignment/SF Site Name
	Base	Option Period Number 1	Support Monitoring QA Programs
Contractor BATTELLE MEMORIAL INSTITUTE		Specify Section and paragraph of Contract SOW Tasks: 1, 3, 4 & 8	
Purpose: <input type="checkbox"/> Work Assignment <input type="checkbox"/> Work Assignment Close-Out <input checked="" type="checkbox"/> Work Assignment Amendment <input type="checkbox"/> Incremental Funding <input type="checkbox"/> Work Plan Approval		Period of Performance  From 01/16/2014 To 12/31/2014	
Comments: This change adds task 10 (Attach 1) to the WA. A revised cost estimate is due within 10 business days of the effective date of this change. Also, the cost ceiling is raised to \$221,000. To the best of our knowledge, this work does not duplicate any work prev. performed, or currently being performed by this office.			
<input type="checkbox"/> Superfund		Accounting and Appropriations Data	
		<input checked="" type="checkbox"/> Non-Superfund	
SFO (Max 2) <input type="checkbox"/> Note: To report additional accounting and appropriations data use EPA Form 1900-69A.			
Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)
			Budget Org/Code (Max 7)
			Program Element (Max 9)
			Object Class (Max 4)
			Amount (Dollars)
			(Cents)
			Site/Project (Max 8)
			Cost Org/Code (Max 7)
1			
2			
3			
4			
5			
Authorized Work Assignment Ceiling			
Contract Period: 01/01/2014 To 12/31/2014		Cost/Fee:    LOE:	
This Action:			
Total:			
Work Plan / Cost Estimate Approvals			
Contractor WP Dated:		Cost/Fee:    LOE:	
Cumulative Approved:		Cost/Fee:    LOE:	
Work Assignment Manager Name Dennis Crumpler		Branch/Mail Code:	
		Phone Number 919-541-0871	
(Signature) _____ (Date) _____		FAX Number:	
Project Officer Name Jeff Curry		Branch/Mail Code:	
		Phone Number: 919-541-4018	
(Signature) _____ (Date) _____		FAX Number: 919-541-4267	
Other Agency Official Name		Branch/Mail Code:	
		Phone Number:	
(Signature) _____ (Date) _____		FAX Number:	
Contracting Official Name Antonio L. Leathers		Branch/Mail Code:	
		Phone Number: 919-541-2312	
(Signature) _____ (Date) _____		FAX Number:	



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The Statement of Work is hereby amended to add the following task:

**Task 10. Incorporate Revisions to the PM2.5 and PMcoarse Weighing Laboratory Standard Operating Procedures (SOP).**

The WAM has provided a draft that includes comments through Chapters 6 of 13 to the Contractor. The WAM will provide the comments for the remaining chapters and deliver them to the Contractor. Using the guidance at <http://www.epa.gov/quality/qs-docs/g6-final.pdf> the Contractor shall:

- Create a Table of Content, List of Tables and List of Figures;
- Create a header and paginate the revisions; and,
- Include all revisions (in order) as an appendix to the approved current version.

The Contractor shall provide a final draft of the SOP to the WAM for incorporation by reference into the Performance Evaluation Program QAPP.

Once the current revision is complete, the Contractor shall maintain a file of subsequent comments received on the SOP for consideration in the next annual revisions.

[END]

<b>EPA</b> United States Environmental Protection Agency Washington, DC 20460 <b>Work Assignment</b>		Work Assignment Number 2-05								
		<input type="checkbox"/> Other <input type="checkbox"/> Amendment Number:								
Contract Number EP-D-13-005		Contract Period 01/01/2013 To 12/31/2017 Base                      Option Period Number 1								
Title of Work Assignment/SF Site Name Pb Anal Audit Web Prep										
Contractor BATTELLE MEMORIAL INSTITUTE		Specify Section and paragraph of Contract SOW Tasks 3 & 11								
Purpose: <input checked="" type="checkbox"/> Work Assignment <input type="checkbox"/> Work Assignment Close-Out <input type="checkbox"/> Work Assignment Amendment <input type="checkbox"/> Incremental Funding <input type="checkbox"/> Work Plan Approval		Period of Performance  From 03/07/2014 To 12/31/2014								
Comments: Title: Pb Analysis Audit Website Preparation. The WA includes 30 hours to prepare the Work Plan and begin work. To the best of our knowledge, this work does not duplicate any work previously performed, or currently being performed by this office.										
<input type="checkbox"/> Superfund                      Accounting and Appropriations Data <input checked="" type="checkbox"/> Non-Superfund										
SFO (Max 2) <input type="checkbox"/> Note: To report additional accounting and appropriations data use EPA Form 1900-69A.										
Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
2										
3										
4										
5										
Authorized Work Assignment Ceiling										
Contract Period:		Cost/Fee:		LOE:		0				
01/01/2013 To 12/31/2017										
This Action:						30				
						30				
Total:										
Work Plan / Cost Estimate Approvals										
Contractor WP Dated:				Cost/Fee:		LOE:				
Cumulative Approved:				Cost/Fee:		LOE:				
Work Assignment Manager Name Michael Papp						Branch/Mail Code:				
_____ (Signature)                      (Date)						Phone Number 919-541-2408				
						FAX Number:				
Project Officer Name Jeff Curry						Branch/Mail Code:				
_____ (Signature)                      (Date)						Phone Number: 919-541-4018				
						FAX Number: 919-541-4267				
Other Agency Official Name						Branch/Mail Code:				
_____ (Signature)                      (Date)						Phone Number:				
						FAX Number:				
Contracting Official Name Antonio L. Leathers						Branch/Mail Code:				
_____ (Signature)                      (Date)						Phone Number: 919-541-2312				
						FAX Number:				



Contract Number: EP-D-13-005  
Contractor: Battelle Memorial Institute  
Work Assignment Number: 2-05  
Work Assignment Manager: Michael Papp

## **STATEMENT OF WORK**

### **I. TITLE: Pb Analysis Audit Website Preparation**

### **II. PROJECT BACKGROUND**

Each year EPA offers to develop Pb Analysis Audits for monitoring organizations performing Pb monitoring. The requirement for these audits can be found in 40 CFR Part 58 Appendix A Section 3.3.4.2. Starting May 2014, EPA will solicit monitoring organization points of contact (POC) to submit the type and quantity of audits it would like to receive for the upcoming calendar year. In 2013, under WA 1-03, Battelle developed an entry system on its website<sup>1</sup> for state/local/tribal monitoring organizations to enter their order electronically. This WA will be used to get the web site ready for 2014 orders for Pb Analysis Audits for calendar year 2015.

### **III. STATEMENT OF WORK**

#### **Task 1. Work Plan and Cost Estimate**

The Contractor shall meet with the Work Assignment Manager (WAM) to discuss the WA tasks and deliverables. This meeting can be via teleconference. The contractor shall then prepare and submit a Work Plan for this WA.

#### **Task 2. Update and Implementation of Audit Selection Form.**

Similar to the Ambient Air Protocol Gas Verification Program (AA-PGVP) Survey, EPA currently maintains a point of contact for each monitoring organization currently monitoring for Pb. Battelle will complete the following subtasks:

##### **A: Web Entry System Review**

EPA and Battelle will review the current entry system to determine if any changes are necessary. Since the system seemed to work well in 2013, it is not anticipated any major revisions will be needed.

- Battelle and EPA will work together to create what is believed to be the most current list of point of contacts (POC) for each monitoring organization and send an email out to each POC alerting them to website entry date and to allow them to identify an alternate POC for their organization. This will occur in mid-April, 2014
- Battelle will prepare the website for 2014 entry starting May 1, 2014. The entry system will be preloaded with POC data.

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<sup>1</sup> <https://www.sdas.battelle.org/AirQA/>

**B: Instruction Guide Revision**

In WA1-03 a simple set of instructions was developed and posted on the Website explaining how the entry system will work for

- POCs already in the system, or
- new POCs, either for a new PQAO or replacing a current PQAO

If revisions occur in Task 2A, Battelle shall revise the guidance document to reflect the changes.

**C: Data Base Assistance/Maintenance/Manipulation/Notification**

Battelle will provide phone and email assistance to those requesting help.

Battelle will maintain the integrity of the data through back up/security procedures documented in the QAPP developed for this overall ambient air web site.

Battelle will provide two lists to EPA monthly:

1. Point of contact emails address, PQAO and agency name of those completing the form.
2. Point of contact email address, PQAO and agency name of those not completing the form

Every two weeks Battelle will send a "reminder" email to those organizations on the list that have not completed the form. EPA will review the email messages sent in 2013 and will revise as necessary for the 2014 email. The reminder message will start May 1, and end Aug 1, 2014.

**D: Order Summary Report**

After the ordering ends (Aug 1, 2013), Battelle will produce a summary report of all fields in the order form for all those agencies that have submitted an order and will include totals for number of TSP audits, PM10 Teflon for ICP-MS, and for PM10 Teflon for XRF analysis. This report will be sent to EPA and all the monitoring agencies as a "Final Order Tally".



#### **IV. DELIVERABLES**

TABLE 1. List of Deliverable and Due Dates

Task	Deliverables	Due Date
1	Work Plan and Cost Estimate	In accordance with the terms of the contract.
2a	POC Letter	April 15, 2014
2a	Website available and data preloaded	May 1, 2014
2b	Instruction Guide Complete	April 15, 2014
2c	Data manipulation/notifications	May 1 – Aug 1, 2014
2d	Order Summary Report	Aug 10, 2014

#### **V. REPORTING REQUIREMENTS**

The reporting requirements shall be in accordance with the terms and conditions in the contract.

[END]

<b>EPA</b> United States Environmental Protection Agency Washington, DC 20460 <b>Work Assignment</b>		Work Assignment Number 2-06								
		<input type="checkbox"/> Other <input type="checkbox"/> Amendment Number:								
Contract Number EP-D-13-005		Contract Period 01/01/2013 To 12/31/2017 Base                      Option Period Number 1								
Contractor BATTELLE MEMORIAL INSTITUTE		Title of Work Assignment/SF Site Name Carbonyls and NATTS TAD								
Specify Section and paragraph of Contract SOW Task 3										
Purpose: <input checked="" type="checkbox"/> Work Assignment <input type="checkbox"/> Work Assignment Close-Out <input type="checkbox"/> Work Assignment Amendment <input type="checkbox"/> Incremental Funding <input type="checkbox"/> Work Plan Approval		Period of Performance  From 04/01/2014 To 12/31/2014								
Comments: Title: Optimization of Carbonyls Measurements and NATTS Technical Assistance Document (TAD). The WA includes 300 hours to prepare the Work Plan and begin work. To the best of our knowledge, this work does not duplicate any work previously performed, or currently being performed by this office.										
<input type="checkbox"/> Superfund		Accounting and Appropriations Data								
		<input checked="" type="checkbox"/> Non-Superfund								
Note: To report additional accounting and appropriations data use EPA Form 1900-69A.										
SFO (Max 2) <input type="checkbox"/>										
Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
2										
3										
4										
5										
Authorized Work Assignment Ceiling										
Contract Period:		Cost/Fee:				LOE: 0				
01/01/2013 To 12/31/2017										
This Action:						300				
Total:						300				
Work Plan / Cost Estimate Approvals										
Contractor WP Dated:				Cost/Fee:		LOE:				
Cumulative Approved:				Cost/Fee:		LOE:				
Work Assignment Manager Name    David Shelow						Branch/Mail Code:				
_____ (Signature)                      (Date)						Phone Number    919-541-3776				
						FAX Number:				
Project Officer Name    Jeff Curry						Branch/Mail Code:				
_____ (Signature)                      (Date)						Phone Number:    919-541-4018				
						FAX Number:    919-541-4267				
Other Agency Official Name						Branch/Mail Code:				
_____ (Signature)                      (Date)						Phone Number:				
						FAX Number:				
Contracting Official Name    Antonio L. Leathers						Branch/Mail Code:				
_____ (Signature)                      (Date)						Phone Number:    919-541-2312				
						FAX Number:				



Contract Number: EP-D-13-005  
Contractor: Battelle Memorial Institute  
Work Assignment Number: 2-06  
Work Assignment Manager: David Shelow

## **STATEMENT OF WORK**

**I. TITLE:** "Optimization of Carbonyls Measurements and NATTS Technical Assistance Document (TAD)"

**II. PURPOSE**

The purpose of this Task Order (TO) is to assist the EPA's Office of Air Quality Planning and Standards (OAQPS), Ambient Air Monitoring Group (AAMG) with support of the National Air Toxics Trends Stations (NATTS) program and the Ozone precursors Photochemical Air Monitoring Stations (PAMS) programs. This TO will result in more reliable measurements of carbonyls such as formaldehyde, acetaldehyde, propionaldehyde, and butylaldehyde. This TO will also provide updated guidance on all air toxics measurements within the NATTS Technical Assistance Document.

**III. BACKGROUND**

There are 189 hazardous air pollutants (HAPs), or air toxics, regulated under the Clean Air Act (CAA) that have been associated with a wide variety of adverse human health and ecological effects, including cancer, neurological effects, reproductive effects and developmental effects. EPA's OAQPS National Air Monitoring programs, NATTS and PAMS measure the air toxics levels in the environment. As part of the PAMS program, State and local monitoring agencies measure ozone precursors and various meteorological parameters important to ozone formation. Carbonyls have been identified as important ozone precursors. Recently, EPA's Air Toxics Risk Assessment Group has determined that formaldehyde, a carbonyl compound, is the highest risk for cancer causing pollutant in our environment. While these programs are managed by EPA, State and local air monitoring agencies perform daily measurements of carbonyls following EPA's Toxic Organic Method TO-11A for measurement of carbonyls. Many of the monitoring agencies have expressed their concern about method uncertainty issues that affect the reliability of their measurements. In 2006 the EPA amended the PAMS monitoring requirements to remove the requirement to measure carbonyls in most PAMS areas due to the method uncertainties. The current PAMS program redesign plans include the reinstatement of the carbonyls measurement requirement contingent on improvements to the method. The National Association of Clean Air Agencies, NACAA, has asked EPA AAMG to provide guidance that optimizes the current EPA methodology to minimize uncertainties within the method to help State and local monitoring agencies provide more

accurate carbonyl measurements.

The NATTS technical assistance document is guidance followed by every lab that supports the NATTS air toxics monitoring agencies. The latest revision of the TAD is dated 2009. The technical advances in analytical equipment it is time to update the TAD.

The Contractor may be required to participate in conference calls and/or attend meetings in EPA RTP, NC, facilities or at off-site locations in the RTP, NC metropolitan area.

#### **IV. STATEMENT OF WORK**

##### **TASK 1 – Develop Workplan and Cost Estimate**

The Contractor shall meet with the Work Assignment Manager (WAM) to discuss the WA tasks and deliverables. This meeting can be via teleconference. The contractor shall then prepare and submit a Work Plan in accordance with the contract.

##### **TASK 2 – Study Toxic Organic Method TO-11a Uncertainties and Develop Method Optimization for TO-11a to Minimize Uncertainties.**

The contractor shall design and conduct special study to evaluate the uncertainties of EPA TO-11A method. Experiments shall include determining the effects of high humidity, high ozone and high NO<sub>x</sub> levels on the standard carbonyl sampling equipment that incorporates a KI scrubber and DNPH cartridges and HPLC-UV detection analytical system. The contractor shall develop a test matrix incorporated in a Quality Management Plan. The goal of this task is to develop updated TO-11A guidance to minimize method uncertainties for State and Local air monitoring agencies.

##### **TASK 3 – Study the Feasibility of other Derivatizing Reagents to be used in TO-11a for Carbonyls Ambient Air Measurements.**

Contractor shall perform a literature search on other possible derivatization chemistry to be used for coating cartridges for use in ambient air collection of carbonyls. The contractor shall develop an experimental design plan to investigate the performance of various chemistries other than DNPH to collect ambient air carbonyls. This task should include coating of cartridges with various novel derivatizing reagent chemistry under increasingly challenging environmental conditions (similar to task # 2) and analyzing using HPLC UV.

##### **TASK 4 – Feasibility Study of a Continuous Direct Reading Measurement of Formaldehyde, Acetaldehyde and Acrolein using a Submillimeter Wave Spectroscopic Sensor.**



The contractor shall design and conduct a feasibility study of using the submillimeter wave spectrometer for continuous direct (near real time) measuring ambient levels of formaldehyde, acetaldehyde, and acrolein at sub ppb levels. The contractor shall challenge the instrument using laboratory standards containing various carbonyls under increasingly challenging environmental conditions (similar to task 2). The contractor shall determine MDL's of the instrument for these pollutants listed.

#### **TASK 5 – NATTS Technical Assistance Document Guidance**

Contractor shall assist EPA in updating the NATTS technical assistance guidance document to ensure proper QA/QC perspectives are included and the latest technological advances are address. This includes meeting with EPA to discuss input from State and Local air monitoring agencies lab support personnel and provide ongoing technical support.

#### **V. DELIVERABLES**

<b>Task</b>	<b>Deliverables</b>	<b>Due Date</b>
1	Work Plan and Cost Estimate	In accordance with the terms of the contract.
2a	Experimental Design & QMP	May 1, 2014
2b	Final Report & Method guidance	July 30, 2014
3a	Experimental Design & QMP	May 1, 2014
3b	Final Report & Method guidance	September 30, 2014
4a	Experimental Design & QMP	May 1, 2014
4b	Final Report & Method guidance	September 30, 2014
5	Final report and recommendations	September 30, 2014

[END]

<b>EPA</b> United States Environmental Protection Agency Washington, DC 20460 <b>Work Assignment</b>		Work Assignment Number 2-07	
		<input type="checkbox"/> Other <input type="checkbox"/> Amendment Number:	
Contract Number EP-D-13-005		Contract Period 01/01/2013 To 12/31/2017 Base                      Option Period Number 1	
Contractor BATTELLE MEMORIAL INSTITUTE		Title of Work Assignment/SF Site Name CSN Assessment Communication	
Purpose: <input checked="" type="checkbox"/> Work Assignment <input type="checkbox"/> Work Assignment Close-Out <input type="checkbox"/> Work Assignment Amendment <input type="checkbox"/> Incremental Funding <input type="checkbox"/> Work Plan Approval		Period of Performance From 04/15/2014 To 12/31/2014	
Comments: Title: Chemical Speciation Network (CSN) Assessment Communication. The WA includes 200 hours to prepare the Work Plan and begin work. To the best of our knowledge, this work does not duplicate any work previously performed, or currently being performed by this office.			
<input type="checkbox"/> Superfund                      Accounting and Appropriations Data <input checked="" type="checkbox"/> Non-Superfund			
SFO (Max 2) <input type="checkbox"/> Note: To report additional accounting and appropriations data use EPA Form 1900-69A.			
Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)
1			
2			
3			
4			
5			
Authorized Work Assignment Ceiling			
Contract Period:		Cost/Fee:	LOE: 0
01/01/2013 To 12/31/2017			
This Action:			200
Total:			200
Work Plan / Cost Estimate Approvals			
Contractor WP Dated:		Cost/Fee:	LOE:
Cumulative Approved:		Cost/Fee:	LOE:
Work Assignment Manager Name Elizabeth Landis		Branch/Mail Code:	
_____ (Signature)                      (Date)		Phone Number 919-541-2262	
		FAX Number:	
Project Officer Name Jeff Curry		Branch/Mail Code:	
_____ (Signature)                      (Date)		Phone Number: 919-541-4018	
		FAX Number: 919-541-4267	
Other Agency Official Name		Branch/Mail Code:	
_____ (Signature)                      (Date)		Phone Number:	
		FAX Number:	
Contracting Official Name Antonio L. Leathers		Branch/Mail Code:	
_____ (Signature)                      (Date)		Phone Number: 919-541-2312	
		FAX Number:	



Contract Number: EP-D-13-005  
Contractor: Battelle Memorial Institute  
Work Assignment Manager: Elizabeth Landis  
Alt. Work Assignment Manager: Joann Rice

Work Assignment Number: 2-07

## **STATEMENT OF WORK**

**I. TITLE:** "Chemical Speciation Network (CSN) Assessment Communication"

## **II. BACKGROUND**

The Chemical Speciation Network (CSN) consists of approximately 190 ambient air monitoring stations across the US. These sites collect aerosol samples over 24 hours on filters that are analyzed for PM2.5 mass, trace elements, major ions and organic and elemental carbon. The primary objectives of the CSN are to support PM2.5 regulatory implementation, support health effects and exposure research studies, and to provide nationally consistent data for the assessment of trends and a long-term record of the chemical composition of PM2.5. EPA is conducting an assessment in an effort to create a network that:

- Is financially sustainable going forward;
- Redistributes resources to new or high priorities from those of low-priority or low-benefit;
- Extracts more value from the existing network; and,
- Fully leverages the value of other existing monitoring networks.

As CSN operational and analytical costs continue to rise in a constrained federal budget environment, changes are necessary to maintain long-term viability of the program. As recommendations are made regarding network changes, the information leading to these decisions and recommendations need to be readily accessible by stakeholders on EPA's website.

## **III. STATEMENT OF WORK**

Note: The Contractor shall not publish or present results from this work assignment without prior notification and review by EPA.

The Contractor shall provide the following:

### **TASK 1 – Develop Workplan and Cost Estimate**

The Contractor shall meet with the Work Assignment Manager (WAM) to discuss the WA tasks and deliverables. This meeting can be via teleconference. The Contractor shall then prepare and submit a Work Plan in accordance with the contract.

## **TASK 2 – CSN Assessment Website Design**

An objectives based assessment approach was taken where each CSN site was evaluated and assigned points for meeting the primary objectives. A list of “low-value” sites was developed and further analysis was conducted to determine if the site should continue to receive laboratory analysis funding. Factors such as collocation with other networks, sites of known importance to health effects researchers, collocation with daily Federal Reference Methods (FRMs) or continuous monitors, PM2.5 design value, population, proximity to other speciation monitoring sites, county emissions, trends in concentrations, model bias/error, and correlation were taken into considering before recommendations were made regarding funding.

The Contractor shall design a website that contains all of the technical information that supported the analysis that was conducted by EPA to determine funding recommendations, including the scoring, decision matrices, spatial maps, etc. The information shall be made available via EPA’s Ambient Monitoring Technology Information Center (AMTIC) website at [www.epa.gov/ttn/amtic](http://www.epa.gov/ttn/amtic). Information related to other money saving options considered though the assessment, such as reduction in sample frequency, reduction in blank frequency, discontinuation of the CSN PM2.5 mass measurement, and efficiencies in shipping, shall also be provided on the website. Information shall also be included that gives background information about the network, the assessment process, and the timeline for network changes. The website shall be interactive and organized in a manner to allow users to easily access all of the supportive technical information related to the assessment of each site.

## **IV. DELIVERABLES**

<b>Task</b>	<b>Deliverables</b>	<b>Due Date</b>
1	Work Plan and Cost Estimate	In accordance with the terms of the contract.
2a	CSN Interactive Assessment Website	July, 2014, with updates as necessary as feedback is received and recommendations change

[END]



**EPA**United States Environmental Protection Agency  
Washington, DC 20460**Work Assignment**

Work Assignment Number

2-08

☐ Other ☐ Amendment Number:

Contract Number

EP-D-13-005

Contract Period 01/01/2013 To 12/31/2017

Base

Option Period Number 1

Title of Work Assignment/SF Site Name

2015 Pb Analysis Audits-TSP

Contractor

BATTELLE MEMORIAL INSTITUTE

Specify Section and paragraph of Contract SOW

Tasks 3 &amp; 6

Purpose:



Work Assignment



Work Assignment Close-Out



Work Assignment Amendment



Incremental Funding



Work Plan Approval

Period of Performance

From 09/03/2014 To 12/31/2014

Comments:

Title: 2015 Pb Analysis Audits-TSP. This WA includes 150 hours to prepare the work plan and begin work. To the best of our knowledge, this work does not duplicate any work previously performed, or currently being performed by this office.



Superfund

## Accounting and Appropriations Data



Non-Superfund

SFO

(Max 2)



Note: To report additional accounting and appropriations data use EPA Form 1900-69A.

Line	DCN (Max 6)	Budget/FY (Max 4)	Appropriation Code (Max 6)	Budget Org/Code (Max 7)	Program Element (Max 9)	Object Class (Max 4)	Amount (Dollars)	(Cents)	Site/Project (Max 8)	Cost Org/Code (Max 7)
1										
2										
3										
4										
5										

## Authorized Work Assignment Ceiling

Contract Period:

Cost/Fee:

LOE: 0

01/01/2013 To 12/31/2017

This Action:

150

Total:

150

## Work Plan / Cost Estimate Approvals

Contractor WP Dated:

Cost/Fee:

LOE:

Cumulative Approved:

Cost/Fee:

LOE:

Work Assignment Manager Name Michael Papp

Branch/Mail Code:

Phone Number 919-541-2408

FAX Number:

(Signature)

(Date)

Project Officer Name Jeff Curry

Branch/Mail Code:

Phone Number: 919-541-4018

FAX Number: 919-541-4267

(Signature)

(Date)

Other Agency Official Name

Branch/Mail Code:

Phone Number:

FAX Number:

(Signature)

(Date)

Contracting Official Name Antonio L. Leathers

Branch/Mail Code:

Phone Number: 919-541-2312

FAX Number:

(Signature)

(Date)

Contract Number: EP-D-13-005  
Contractor: Battelle Memorial Institute  
Work Assignment Number: 2-08  
Work Assignment Manager: Michael Papp

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**I. TITLE 2015 Pb Analysis Audits - TSP**

**II. PROJECT BACKGROUND**

On October 15, 2008, EPA substantially strengthened the national ambient air quality standards (NAAQS) for lead. The revised standards are 10 times tighter than the previous standards and will improve health protection for at-risk groups, especially children.

EPA has revised the level of the primary (health-based) standard from 1.5 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ), to 0.15  $\mu\text{g}/\text{m}^3$ , measured as total suspended particles (TSP). EPA has revised the secondary (welfare-based) standard to be identical in all respects to the primary standard.

Due to the revision of the Pb NAAQS, a number of changes were made to the Ambient Air QA Program for Pb. One change made was reducing the concentration of the Pb-strip audits relative to the lowering of the NAAQS.

Level	Prior Regulation		Current Regulation		
	Pb Conc ( $\mu\text{g}/\text{strip}$ )	Ambient Air Conc* ( $\mu\text{g}/\text{m}^3$ )	Pb Conc ( $\mu\text{g}/\text{strip}$ )	Ambient Air Conc* ( $\mu\text{g}/\text{m}^3$ )	Conc Percentage of NAAQS
1	100 - 300	0.5 - 1.5	9 - 30	0.04 - 0.15	30-100%
2	600 - 1000	3.0 - 5.0	60 - 90	0.30 - 0.45	200-300%

\* Equivalent ambient Pb concentration in  $\mu\text{g}/\text{m}^3$  is based on sampling at 1.7  $\text{m}^3/\text{min}$  for 24 hours on a 20.3 cmX25.4 cm (8X10 inch) glass fiber filter.

**PURPOSE:** To prepare TSP strips at two concentration ranges and provide the results of each analysis. If replicate analysis results are acceptable and results between the Battelle and EPA referee labs are comparable, Battelle shall distribute these audits to Pb analyzing laboratories.

**III. STATEMENT OF WORK**

Note: This WA is follow-on to WA 1-07. The WAM will provide the Contractor with all filter media. The Contractor shall perform the following specific sub-tasks:

**TASK 1 - Work Plan and Cost Estimate**

The Contractor shall meet with the Work Assignment Manager (WAM) to discuss the WA tasks and deliverables. This meeting can be via teleconference. The Contractor shall then prepare and submit a Work Plan for this WA.



## **TASK 2: - Development and Testing of Pb Analysis Audits- Filter Strips**

1000, 1-inch Pb strips shall be made at two concentrations ranges for a total of 500 strips per concentration. One concentration range shall be from 30-100% and a second from 200-300% of the current NAAQS. EPA suggests strip concentrations of around **15 µg/strip** for the low concentration and around **65 µg/strip** for the higher concentration. All strips within the selected concentration ranges shall be made at the same concentration. The strips shall be packaged individually to protect strip integrity. However, each lab will require 1 years worth of strips so 12 low concentration strips and 12 high concentration strips, for a total of 24 strips will also be bagged so that a group of 24 strips can be sent to a laboratory.

**NOTE:** based on orders, some labs have asked for more than multiples of 24 strips.

The Contractor shall develop the audit samples as indicated in the SOP developed for earlier work. The Contractor shall analyze the filters by ICP-MS following EQL-0510-191

The labeling of the strips will be "BAT-Filter Type-Year-Concentration-Filter Number"

- 1) Low Concentration Filter - "**BAT-TSP-2015-01-001**"
- 2) High Concentration Filter - "**BAT-TSP-2015-02-001**"

The strips will be made from lead solutions purchased from NIST and pipettes of known and tested accuracy and reliability.

Battelle shall analyze a minimum of 7 filters from each concentration in order to establish the audit strip concentrations. **Filters shall be considered acceptable if within +/- 5 percent relative standard deviation from the average of the determined values. Any filters not meeting this criteria shall be rejected and the Contractor shall be directed to remake the rejected level. All raw data and final concentrations shall be submitted to EPA.**

In addition, Battelle shall distribute six strips at each concentration to 3-4 laboratories named at a later date who will analyze them. The filter analysis for each of the labs listed above will also be considered acceptable **if within +/- 5 percent relative standard deviation from the average of the labs determined values and if the average concentration for each range is within 7% of the Contractors established concentration.**

## **TASK 3- Distribution of Pb Analysis Audits to Monitoring Agencies/labs**

The Pb-Analysis Survey on the Battelle Website provides the order information for the agencies ordering the Pb analysis audits. Once referee analysis passes, Battelle will package and ship filters out 2-day mail to the laboratories using the EPA UPS account.

#### **IV. DELIVERABLES**

TABLE 1. List of Deliverable and Due Dates

<b>Task</b>	<b>Deliverables</b>	<b>Due Date</b>
1	Work Plan and Cost Estimate	In accordance with the terms of the contract.
2	Development of Pb Analysis Audits- Filter Strips	Oct 17, 2014
2	Referee testing	Nov 21, 2014
3	Distribution of Pb strips to monitoring agencies/labs	Dec 1-15, 2014

#### **V. REPORTING REQUIREMENTS**

The reporting requirements shall be in accordance with the terms and conditions in the contract.

#### **VI. QAPP REQUIREMENTS**

Unless revisions are required, Battelle shall conform to the QAPP developed and approved for WA 1-07.

[END]